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| CESARI AND MCKENNA, LLP | | | EXAMINER | |
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| BOSTON, MA 02210 | | | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/087,376

Applicant(s)

DUFFIE ET AL.

Examiner

Saket K. Daftuar

Art Unit

2151

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This office action is response to the appeal brief filed on June 25th, 2007. An appellant argument raised during appeal brief appears to be persuasive and therefore, the Finality of the office action, issued on September 19th, 2006, has been withdrawn. Claims 1-35 are presented for the further examination.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-9, 13-14, 17, 21-27, 31 and 32 are rejected under 35 U.S.C. 102(e) as being anticipated by Robertazzi et al. U.S. Patent Number 6,370,560 B1 (hereinafter Robertazzi).

As per claim 1, Robertazzi discloses determining the size of the packet (see column 4, line 7 – 59); a cost associated with the packet, the cost representing a load associated with processing the packet (see column 4, line 7 – 59; column 11, lines 5 – 28); determining an anticipated load for each coprocessor in the plurality of coprocessors using the cost (see column 4, line 7 – 59; column 11, line 5 – column 12, line 39); and selecting the coprocessor

[selected processors] from the plurality of coprocessors based on the anticipated load (see column 4, line 7 – 59; column 11, line 5 – column 12, line 39).

As per claim 2, Robertazzi discloses calculating the cost using a rate associated with processing the packet (see column 4, line 7 – 59; column 11, line 5 – column 12, line 39).

As per claim 3, Robertazzi discloses the rate is stored in a lookup table (see Figure 9, column 19, lines 1-19).

As per claims 4 and 5, Robertazzi discloses dividing [divided load] the packet's size by the rate (see column 4, line 7 – 59; column 11, line 5 – column 12, line 39). Robertazzi also discloses the step of multiplying the packet's size [multiplied by the size of overall load] by a multiplicative inverse of the rate (see column 4, line 7 – 59; column 11, line 5 – column 12, line 39).

As per claim 6, Robertazzi discloses applying the packet's size to a lookup table containing one or more cost values to determine the cost (see Figure 9, column 19, lines 1-19).

As per claim 7, Robertazzi discloses adding the cost to a cumulative load associated with each coprocessor in the plurality of coprocessors (see column 4, line 7 – 59; column 11, line 5 – column 12, line 39).

As per claim 8, Robertazzi discloses selecting the coprocessor from a group of one or more coprocessors whose anticipated load is a minimum load [minimum or low resource utilization cost] (see column 4, line 7 – 59; column 11, line 5 – column 12, line 39).

As per claim 9, Robertazzi discloses the coprocessor is selected using a scheduling [optimization techniques can be applied to generic problems scheduling, graph problems, sequencing, and assignment] algorithm (column 20, lines 10-19).

As per claims 13 and 14, Robertazzi discloses of incrementing a cumulative load associated with the selected coprocessor (see column 4, line 7 – 59; column 11, line 5 – column 12, line 39).

Robertazzi also discloses adding the cost to the cumulative load (see column 4, line 7 – 59; column 11, line 5 – column 12, line 39).

As per claim 17, Robertazzi discloses a memory containing one or more software routines [optimization routine, column 7, lines 9-18; column 11, line 5 – column 12, line 39, memory to store operations], including a software routine configured to determine the size of the packet (see column 4, line 7 – 59), a cost associated with the packet of that size (see column 4, line 7 – 59; column 11, lines 5 – 28), the cost representing a load associated with processing the packet (see column 4, line 7 – 59; column 11, line 5 – column 12, line 39); and a processor configured to execute the software routines [optimization routine, column 7, lines 9-18; column 11, line 5 – column 12, line 39, memory to store operations] to determine an anticipated load for each coprocessor in the plurality of coprocessors using the cost and to select the coprocessor [selected processors] from the plurality of coprocessors based on the anticipated load (see column 4, line 7 – 59, column; column 11, line 5 – column 12, line 39).

As per claim 21, claim 21 is device claim of method claim 1. They do not teach or further define over the limitation as recited in claim 1. Therefore, claim 21 rejected under same scopes as discussed in claim 1, supra.

As per claim 22, claim 22 is computer readable media claim of method claim 1. They do not teach or further define over the limitation as recited in claim 1. Therefore, claim 22 rejected under same scopes as discussed in claim 1, supra.

As per claims 23- 25, claims 23 – 25 are method claims of claims 1, 2-3 and 6. They do not teach or further define over the limitation as recited in claims 1, 2-3 and 6. Therefore, claims 23 – 25 are rejected under same scope as recited in claims 1, 2-3 and 6, supra.

As per claim 26, Robertazzi discloses determining a cumulative load for each coprocessor (see column 4, line 7 – 59; column 11, line 5 – column 12, line 39), the cumulative load representing load due to packets currently awaiting (see column 5, line 47 – column 6, line 36, job queue determining resource utilization cost of any available distributed processor connected to the system's network and provides the controller with divisible load or task to be distributed) processing at that coprocessor; determining a size of the received packet (see column 4, line 7 – 59); determining a cost for processing the received packet at each coprocessor, the cost determined, at least in part, in response to the size of the received packet and a processing rate of that coprocessor (see column 4, line 7 – 59; column 11, lines 5 – 28); combining the cumulative load and the cost at

each coprocessor, to create an anticipated load for each coprocessor (see column 4, line 7 – 59; column 11, line 5 – column 12, line 39); comparing the anticipated loads [compare different processors using the same parameters] of all the coprocessors (see column 4, line 7 – 59; column 11, line 5 – column 12, line 39); and selecting, in response to the comparing, a particular coprocessor [selected processors] of the plurality of coprocessors to perform the processing operation on the received packet (see column 4, line 7 – 59; column 11, line 5 – column 12, line 39).

As per claim 27, they do not teach or further define over the limitation as recited in claim 8, respectively. Therefore, claim 27 rejected under same scope as recited in claims 8, supra.

As per claim 31, Robertazzi discloses A plurality of queues configured to store packets currently awaiting processing, each queue associated with one of the coprocessors, each queue associated with a cumulative load that represent a load to process packets in that queue (see column 5, line 47 – column 6, line 36, job queue determining resource utilization cost of any available distributed processor connected to the system's network and provides the controller with divisible load or task to be distributed); a data structure configured to store processing rates, each processing rate associated with one of the coprocessors; and a processor configured to determine a size of the received packet, and in response to the size of the received packet (see column 4, line 7 – 59), and the processing rate of each coprocessor, determine a cost to perform a processing

operation on the received packet at each coprocessor (see column 4, line 7 – 59; column 11, line 5 – column 12, line 39), the processor further configured to combine the cost at each coprocessor with the cumulative load at that coprocessor to create an anticipated load at each coprocessor (see column 4, line 7 – 59; column 11, line 5 – column 12, line 39), and to select a particular coprocessor to perform the processing operation on the received packet in response to comparison of the anticipated load at each coprocessor (see column 4, line 7 – 59; column 11, line 5 – column 12, line 39).

As per claims 32, they do not teach or further define over the limitation as recited in claims 8, 10-12, and 13-16, respectively. Therefore, claims 32, 33, and 34 are rejected under same scope as recited in claims 8, 10-12, and 13-16, *supra*.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 10-12, 15-16, 18-20, 28-29, 30,33,34, and 35 rejected under 35 U.S.C. 103(a) as being unpatentable over Robertazzi et al, U.S. Patent Number 6,370,560 B1 (hereinafter Robertazzi) in view of Modi et al, U.S. Patent Number 6,587,866 B1 (hereinafter Modi).

Robertazzi discloses a plurality of queues configured to store packets currently awaiting processing, each queue associated with one of the coprocessors, each queue associated with a cumulative load that represent a load to process packets in that queue; a data structure configured to store processing rates, each processing rate associated with one of the coprocessors; and a processor configured to determine a size of the received packet, and in response to the size of the received packet, and the processing rate of each coprocessor, determine a cost to perform a processing operation on the received packet at each coprocessor, the processor further configured to combine the cost at each coprocessor with the cumulative load at that coprocessor to create an anticipated load at each coprocessor, and to select a particular coprocessor to perform the processing operation on the received packet in response to comparison of the anticipated load at each coprocessor.

However, Robertazzi is silent about determining if a port associated with the packet is congested, and selecting coprocessor based on anticipated load not a minimum load.

As per claim 10, Modi teaches that determining if a port associated with the packet is congested (see column 10, lines 56-58).

Therefore, it would have bee obvious to one having ordinary skilled in the art at the time the invention was made to combine teaching of Robertazzi and Modi as they both are from same field endeavor to provides a method of distributing packets to server nodes in cluster of nodes including the steps of

receiving a packet that is directed to a selected service which can be provided by plurality of nodes in cluster and determining an appropriate server node based at least in part on whether the service designates scalable service between the server nodes that is efficient, scalable and highly available, and allows client affinity.

As per claim 11, Robertazzi discloses that selecting the coprocessor from a group of one or more coprocessors whose anticipated load is not a minimum load (see column 4, line 7 – 59; column 11, line 5 – column 12, line 39).

As per claim 12, claim 12 falls under the same limitation of claim 8. Therefore, claim 12 has been rejected under same rationale.

As per claims 15 and 16, Modi teaches decrementing a cumulative load associated with the selected coprocessor (see column 12 lines 54-59). Additionally, Modi also discloses subtracting the cost from the cumulative load [examiner consider deletion of connection and deleting service on particular nodes as removing service weight from that node].

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine teaching of Robertazzi and Modi as they both are from same field endeavor to provide a method of distributing packets to server nodes in cluster of nodes including the steps of receiving a packet that is directed to a selected service which can be provided by plurality of nodes in cluster and determining an appropriate server node based at

least in part on whether the service designates scalable service between the server nodes that is efficient, scalable and highly available, and allows client affinity.

As per claim 18, Modi teaches a data structure (see column 4, lines 41); wherein the cost is determined using information contained in the data structure (see column 4, lines 41; see column 7, lines 40-44).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine teaching of Robertazzi and Modi as they both are from same field endeavor to provide a method of distributing packets to server nodes in cluster of nodes including the steps of receiving a packet that is directed to a selected service which can be provided by plurality of nodes in cluster and determining an appropriate server node based at least in part on whether the service designates scalable service between the server nodes that is efficient, scalable and highly available, and allows client affinity.

As per claim 19, Modi teaches that the information contained in the data structure includes the cost (see column 4, lines 41; see column 7, lines 51-54).

As per claim 20, Modi teaches that the information contained in the data structure includes a rate the coprocessor can process the packet (see column 4, lines 41; see column 7, lines 19-20).

As per claims 28, 29, 33, and 34 they do not teach or further define over the limitation as recited in claims 10-12, and 13-16, respectively. Therefore, claims 27, 28 and 29 are rejected under same scope as recited in claims 10-12, and 13-16, *supra*.

6. Claims 30 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Robertazzi and Modi as applied to claims 1-29 and 31-34 above, and further in view of Feinberg et al, U.S. Patent No. 6,065,046 (hereinafter Feinberg).

Robertazzi in view of Modi discloses determining a cumulative load for each coprocessor, the cumulative load representing load due to packets currently awaiting processing at that coprocessor; determining a size of the received packet; determining a cost for processing the received packet at each coprocessor, the cost determined, at least in part, in response to the size of the received packet and a processing rate of that coprocessor; combining the cumulative load and the cost at each coprocessor, to create an anticipated load for each coprocessor; comparing the anticipated loads of all the coprocessors; and selecting, in response to the comparing, a particular coprocessor of the plurality of coprocessors to perform the processing operation on the received packet.

However, neither Robertazzi nor Modi discloses an encryption operation for processing packets.

Feinberg teaches the processing operation is an encryption operation (see column 5, lines 21-67).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine teaching of Robertazzi, Modi and Feinberg as they all are from same field endeavor to provide a secure encrypted method of distributing packets to server nodes in cluster of nodes including the steps of receiving a packet that is directed to a selected service which can be provided by plurality of nodes in cluster and determining an appropriate server node based at least in part on whether the service designates scalable service between the server nodes that is efficient, secure, scalable and highly available, and allows client affinity.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See accompanying PTO 892.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saket K. Daftuar whose telephone number is 571-272-8363. The examiner can normally be reached on 8:30am-5:00pm M-W.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Valencia Martin-Wallace can be reached on 571-272-3440. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SKD

V. Martin Wallace
VALENCIA MARTIN-WALLACE
PRIMARY EXAMINER